Louisiana, while *I. ciliata* is permitted to grow from the same eastern limit west to Nebraska and New Mexico. Examination of the specimens in the United States National Herbarium shows that the attempted separation corresponds to nothing in nature. The bracts vary from narrowly linear-lanceolate and attenuate to ovate and short-acuminate. The extremes are naturally quite different in appearance, but are connected by such a series of intergrades that no specific or even varietal distinction can be drawn. The alleged difference in pubescence of the bracts mentioned by Rydberg is non-existent. In his original description Small stated that the leaves were thinner and smoother. This is obviously an ecological feature associated with growth in a damp, shady habitat. A specimen from Mississippi labeled *I. caudata* by Rydberg has relatively thick, rough leaves, as do others from Texas (*Ruth* 538; *Joor; Havard*) which have bracts quite as narrow as in specimens labeled *Iva caudata* by Rydberg. *Iva caudata* must be referred outright to the synonymy of *I. ciliata*.

Bureau of Plant Industry,
Washington, D. C.

PANICUM TUCKERMANI A VARIETY OF PANICUM PHILADELPHICUM

Julian A. Steyermark and Hazel M. Schmoll

Hitchcock[1] and Fernald[2] have regarded *Panicum Tuckermani* Fernald as a valid species of northern distribution, from Quebec and northern Maine to Connecticut, New York, Indiana, and Wisconsin.

A careful study, in the herbarium of Field Museum, of the *capillare*-group of the genus *Panicum* convinced the writers that more specimens than were accessible to us needed to be studied in order to clarify our concepts regarding *Panicum philadelphicum* Bernh., *P. Tuckermani* Fernald, and *P. Gattingeri* Nash. Since the herbarium of Field Museum contained only one specimen of *P. Tuckermani* which had been determined by Fernald (Maine: exsiccated clay, Orono, August 18, 1908, *M. L. Fernald*, in Pl. Exsicc. Gray, no. 113) specimens of *P. Tuckermani* were, therefore, borrowed from the Gray Herbarium. Of the twenty-five specimens from the Gray Herbarium,

[1] Manual of the Grasses of the United States, U.S.D.A. Misc. Publ. no. 200. 667 (1935).

[2] Rhodora **21:** 111–114. 1919.

eleven were collected before 1921 and listed by Fernald[1] in his description of *P. Tuckermani*, where 45 specimens were cited.

Fernald[2] has stated that *P. philadelphicum* is "A southern species, known in New England only locally in Connecticut." Having the characters of "glabrous pulvini" and "spikelets 2–7" in mind, when examining specimens of *P. philadelphicum* in the herbarium of Field Museum, five sheets were segregated as *P. Tuckermani*. All of these specimens, however, were from southern states, and extended the range of *P. Tuckermani* to that of *P. philadelphicum*, thereby breaking down the belief that *P. Tuckermani* was of only northern distribution (KENTUCKY: * Harlan County, August, 1893, *T. H. Kearney, Jr.*: along Poor Fork of Cumberland River, Harlan County, August, 1893, *T. H. Kearney, Jr.*, no. 151; at Poor Fork Post office, Harlan County, August, 1893, *T. H. Kearney Jr.*, no. 151. GEORGIA: * on Yellow River, near McGuire's Mill, Gwinnett County, altitude 750 ft., September 9, 1894, *John K. Small*).

The habit of the specimens of *P. Tuckermani* from the Gray Herbarium varied. The plants, classified according to height, consisted of those 30 cm. or more, and those 30 cm. or less high. Eleven of these, which included the type, were of the tall group. They occurred mostly in tufts and the lowest nodes were often geniculate. (MASSACHUSETTS: * sandy shore of Winter Pond, Winchester, September 22, 1908, *M. L. Fernald*. MAINE: * beach of Lambert Lake, valley of the St. Croix River, Washington County, September 1, 1908, *M. L. Fernald*. NEW YORK: waste ground, open alluvial and marshy flats between the city and Cayuga lake west of the Inlet, Ithaca, August 19, 1913, *E. L. Palmer*, no. 79; damp ledges of Trenton limestone, banks of Black river, Dexter, Jefferson County, August 26, 1922, *M. L. Fernald, K. M. Wiegand,* & *A. J. Eames*, no. 14142; alluvial thickets and damp shores overlying Cambrian (Potsdam) sandstone or Adirondack gneiss, Narrows Island, Black Lake, St. Lawrence County, August 30, 1922, *Fernald, Wiegand* & *Eames*, no. 14143; * gravel along Fall Creek above Forest Home, Tompkins County, Ithaca, August 8, 1918, *K. M. Wiegand*, no. 9141. NEW HAMPSHIRE: * dry roadside, Alstead, August 2, 1900, *M. L. Fernald*, no. 361. VERMONT: head of Lake Memphremagog, September, 1859, *Edw. Tuckerman* (TYPE, in Gray Herb.). WISCONSIN: * St. Croix, "native," 1861, *T. J. Hale*

[1] RHODORA *ibid.*
[2] RHODORA *ibid*

(2 * specimens); * muddy shore of a small kettlehole pond (Sect. 29, T14 N. R 7 E), Big Spring, Adams County, September 22, 1929, *N. C. Fassett, F. M. Uhler* & *W. T. McLaughlin*, no. 9654).

The plants 30 cm. or less high consisted of four fragile forms, i. e., the culms were very slender and the leaves were 1–4 mm. wide, and ten depauperate. Representatives of the fragile forms were (MAINE: woods, Biddeford Pool, September 20, 1901, *Geo. G. Kennedy*, no. 1: Woodstock, 1887, *J. C. Parlin.* WISCONSIN: sandy shore of Loon Lake, Mellen, Ashland County, September 8, 1927, *N. C. Fassett* & *L. R. Wilson*, no. 5153; * wet shaded sandy shore of Sand Lake 10 miles south of Hayward, Sawyer County, September 4, 1928, *E. M. Gilbert* & *N. C. Fassett*, no. 7284).

Depauperate forms were (QUEBEC: vallée de la Gatineau, Ironside, August 8, 1921, *Frs. Rolland* & *Marie-Victorin*, no. 15217 (1103); sur rivage du lac des Deux Montagnes, flore des environs de la Trappe, September 14, 1926, *P. Louis Marie*, no. 26; damp magnesian gravel and mud about the asbestos quarries, Black Lake, Megantic County, August 26, 1915, *M. L. Fernald* & *H. B. Jackson;* vallée de l'Ottawa, Ironside, August 26, 1921, *F. Rolland-Germain*, no. 19211; sandy beach of the St. Lawrence, Bellechasse County, Anse St. Vallier, September 15, 1931, *M. L. Fernald*, no. 2501. MASSACHUSETTS: * shore of Winter Pond, Winchester, October 20, 1901, *Geo. G. Kennedy.* MAINE: river-beach, Mattawamkeag River, Mattawamkeag, September 14, 1898, *M. L. Fernald;* exsiccated clay, Orono, August 18, 1908, *M. L. Fernald* in Pl. Exsicc. Gray. no. 113. RHODE ISLAND: * open gravelly soil, Lincoln, September 16, 1906, *M. L. Fernald.* VERMONT: muddy borders of small pond south of Haystack Pond, abundant, elevation 2800 ft., Wilmington, September 25, 1908, *Fred G. Floyd*, no. 2574).

All specimens of *P. Tuckermani* in the herbarium of Field Museum, segregated on the basis of glabrous pulvini, except the specimen collected by *Fernald* in Pl. Exsicc. Gray, no. 113, were tall.

Observations and comparison of the habit of *P. philadelphicum* and *P. Tuckermani* specimens in the two herbaria led the writers to conclude that both species have the same variations in form, i. e., tall, and fragile and depauperate low specimens; and both have specimens with the lowest nodes of the culms geniculate. Furthermore, the culms of *P. Tuckermani* are not more leafy than those of *P. philadelphicum*.

P. Tuckermani, according to Hitchcock's description, resembles

P. philadelphicum and intergrades with it. The use of glabrous pulvini as a distinguishing character between *P. philadelphicum* and *P. Tuckermani* seems to be only a relative term since hair was found on at least one pulvinus on specimens on 10 of the 25 sheets of *P. Tuckermani* from the Gray Herbarium,[1] and 3 of the 5 specimens segregated as *P. Tuckermani* in the herbarium of Field Museum.[2] Furthermore, these hairy pulvini occur only on the lowermost branches of the panicles.

The distribution of hairy pulvini varies also in *P. philadelphicum*. On 5 of the 10 specimens in the herbarium of Field Museum hair occurred on the pulvini of only the lower branches of the panicles. (PENNSYLVANIA: Telford, Bucks Co., August 18, 1921, *W. M. Benner*, no. 276. DISTRICT OF COLUMBIA: sandy hillside among *Rubus* and young *Pinus virginiana*, plants solitary, erect, Deanwood, August 12, 1905, *Agnes Chase*, Am. Gr. Nat. Herb. no. 23. GEORGIA: rocky slope (the form with spikelets larger than typical, noted op. cit. 59), Stone Mountain, August 23, 1905, *A. S. Hitchcock*, Am. Gr. Nat. Herb. no. 24); on the slopes and summit of Stone Mountain, altitude 1000–1686 ft., September 6–12, 1894, *John K. Small*).

Owing to a wide variation in the occurrence of hair on the pulvini and their occurrence on even some of those specimens of the various forms that have been determined as *P. Tuckermani*, the writers believe that "glabrous pulvini" is not a sufficiently stable character to warrant the separation of *P. Tuckermani* as a species.

Fernald[3] gives the following in his description of *P. Tuckermani:* "the branchlets spicate-racemose, with 2–7 short-pedicelled or subsessile spikelets." The spikelets of *P. philadelphicum* and *P. Tuckermani* occur in twos, and are often short-pedicelled, but none were found that seemed to be subsessile. The fact that the spikelets are usually appressed on the branches does not seem to warrant their being called spicate-racemose. To be sure, most of the sheets examined from the Gray Herbarium have 4–7 spikelets appressed to the branches, thereby giving the panicle a dense appearance, but there are sheets of *P. Tuckermani* in the herbarium of Field Museum in which the spikelets occur predominantly in twos and the branchlets are somewhat spreading. (KENTUCKY: along Poor Fork of Cumber-

[1] See asterisk before specimens cited.
[2] See asterisk before specimens cited.
[3] RHODORA ibid, p. 112.

land River, Harlan County, August 1893, *T. H. Kearney, Jr.*, no. 151; Harlan County, August, 1893, *T. H. Kearney, Jr.*)

P. philadelphicum usually has 1–3 spikelets on its spreading branches. The observation that the number of spikelets along a branch and the density of the panicle are too variable to be considered as characters which separate species, is proved by a sheet in the herbarium of Field Museum, a specimen of which has 2–4 appressed spikelets on a branch (Missouri: sandstone slopes, 2½ miles NE of Roscoe, St. Clair Co., October 3, 1936, *Julian A. Steyermark*, no. 20196).

P. Tuckermani cannot be separated from *P. philadelphicum* by its "short-exserted panicles" mentioned by Fernald.[1] There is a wide range in the degree of exsertion in both species. Panicles on which the spikelets are immature are usually narrow, but on mature specimens it is more frequent for the main branches of both species to be widely spreading.

Fernald[2] differentiates *P. Gattingeri* from *P. Tuckermani* by its "shorter and broader leaves, ellipsoid panicle, and more scattered, longer-pedicelled larger spikelets." Field Museum specimens agree with these characters in all except the "shorter leaves." The length of the leaves varies greatly in specimens of *P. Gattingeri* and the spikelets are not only longer in *P. Gattingeri*, but are also more turgid than in the specimens of *P. Tuckermani* and *P. philadelphicum*.

Close comparison of the species has led the writers to believe that *P. Tuckermani* can be considered only as a variety of *P. philadelphicum* and, therefore, should be called

Panicum philadelphicum var. **Tuckermani** (Fern.), comb. nov. *Panicum Tuckermani* Fernald in Rhodora **21**: 111–114. 1919.

Herbarium of Field Museum of Natural History,
Chicago, Illinois

MONOGRAPHIC STUDIES IN THE GENUS ELEOCHARIS—V

H. K. Svenson

(*Continued from page 77*)

125. E. Loefgreniana Boeckl. (pl. 545, fig. 7). Map 51. Perennial; culms *coarse* (ca. 0.5 mm. wide) and *rigid*, 10–17 cm. long, *dull grayish-green*, fasciculate from the apex of an ascending rootstock, striate and obscurely sulcate: sheaths reddish, loose, the apex sub-

[1] Rhodora *ibid.*
[2] Rhodora *ibid.* p. 114.